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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/826,595

Applicant(s)

HOFFMAN ET AL.

Examiner

JASON M. SIMS

Art Unit

1631

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8, 9, 11-14, 16-18, 20-23, 25-31, 33-40 and 42-51 is/are pending in the application.
- 4a) Of the above claim(s) 8, 9, 17, 25, 26, 34, 42, 43 and 51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11-14, 16, 18, 20-23, 27-31, 33, 35-40 and 44-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 8/3/2009.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/3/2009 has been entered.

Claims 8-9, 17, 25-26, 34, 42-43, and 51 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventive group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 11/13/2006.

Applicant's cancellation of claim 19 in the response filed 8/3/2009 is acknowledged and has been entered.

Applicants have amended their claims, filed 8/3/2009, and therefore rejections newly made in the instant office action have been necessitated by amendment.

Applicant's arguments, filed 8/3/2009, have been fully considered. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claims 1-6, 11-14, 16, 18, 20-23, 27-31, 33, 35-40, and 44-50 are the current claims hereby under examination.

Claim Rejections - 35 USC § 103-Modified

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-6, 11-14, 16, 18, 20-23, 27-31, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan (US A/N 2002/0110823).

The claims are directed to a computer-implemented method for displaying a warning that a clinical agent received from a clinician should not be administered to a person, comprising the steps of:

receiving from a clinician clinical agent information, the clinical agent information including an identifier of a specific clinical agent;

identifying each of the genes associated with the clinical agent by comparing the identifier of the clinical agent received from the clinician to a first data set containing

agent-gene associations, wherein the associated genes are likely to interact with the clinical agent to result in an atypical event;

when a gene is associated with the clinical agent, automatically obtaining a genetic test result value for the associated gene of the person, wherein

automatically obtaining comprises:

(a) receiving identification of the person to whom the clinical agent is to be administered and proper authorization to access an electronic medical record (EMR) of the person; and

(b) utilizing identification and the proper authorization to access patient information within the EMR of the person stored within a comprehensive healthcare system;

when the patient information comprises the genetic test result value for the associated gene of a person, comparing the genetic test result value to a second data set containing one or more polymorphism values associated with one or more polymorphism values with one or more atypical clinical events for the clinical agent;

otherwise, automatically ordering a test to determine the genetic test result value for the associated gene of a person when the test is available and is authorized by a clinician;

determining whether the genetic test result value correlates to one or more of the one or more polymorphism values contained in the second data set; and

when the genetic test result value correlates to one or more of the one or more polymorphism values, displaying a warning to the clinician agent received from the

clinician should not be administered, and recording an indication of the warning in the EMR of the person.

Hogan teaches limitations of claims 1, 18 and 35 as follows: Hogan at the abstract discusses a method for tailoring a subject's surgical treatment to reflect genetic information. Hogan at paragraph [0005] discusses that the choice of anesthetic regimen, agent, and dose depends on the type of surgery or procedure. Therefore, it is implied that with planning a surgery a clinician will plan for the appropriate clinical agent, i.e. anesthesia drug, to be administered during the surgery, which reads on the first method step, receiving from a clinician clinical agent information, the clinical agent information including an identifier of a specific clinical agent. Hogan at paragraphs [0007] – [0009] discusses how certain genes are associated with particular anesthetic drugs. Hogan at Figs. 4 and 5 describes data sets that comprise genes, alleles and associations with particular clinical agents. Therefore, it is implied that when determining if a gene is associated with a particular clinical agent that it is through comparing the identifier of the clinical agent to a data set comprising agent-gene associations. Hogan paragraphs [0011] – [0013] discusses genomic screening of a subject prior or during a surgical procedure to obtain a genomic profile, which reads on the second step of determining if a gene is associated with the clinical agent by comparing the identifier of the clinical agent received from the clinician to a first data set containing agent-gene associations, and if a gene is associated with the clinical agent, obtaining a genetic test result value for the associated gene of the person. Hogan at paragraphs [0019] – [0022] discusses obtaining a genomic profile for a subject which

screens the subject for one or more polymorphism values associated with one or more clinical events associated with one or more clinical agents. It is implied that the genomic profile result values are compared with a data set comprised of genes and alleles associated with clinical agents and events, such as in Figs. 4 and 5, which reads on the third method step comparing the genetic test result value to a second data set containing one or more polymorphism values associated with one or more polymorphism values with one or more atypical clinical events for the clinical agent. Hogan at paragraphs [0018] and [0019] discusses screening a patient to determine a risk for surgical complications associated with known genetic variations. Furthermore, Hogan at paragraph [0190] discusses that the risk assessment for the various treatment options are displayed to the clinician on a computer monitor, which reads on the final method step of determining whether the genetic test result value correlates to one or more of the one or more polymorphism values contained in the second data set, and if so, displaying a warning to the clinician agent received from the clinician should not be administered. Moreover, Hogan at paragraphs [0189] – [0193] discusses the use of computers for performing the instant invention, all of which imply the use of computer programs and components for performing the instant method steps as in claim 18.

With respect to claim 1: Hogan suggests, but does not explicitly teach the amended steps of claim 1 of, automatically obtaining comprises:

Administering a test to gather a genetic test result only after steps (a)-(d) are met. In particular, Hogan do not explicitly teach first determining that patient

information in an EMR does not comprise a genetic test result value for the associated gene.

Hogan suggests this because at paragraphs [0187] – [0195], Hogan teaches that a central processing facility where the genomic profiling data is stored provides the advantage of privacy, wherein privacy implies security and authorizing access to data. Hogan further teaches specifically at paragraph [0193] that the subject, i.e. patient, can determine the fate of the genomic profiling data. Furthermore, Hogan teaches at paragraph [0187] conditions for performing genomic profiling on a patient, wherein a patient would need to provide a genomic sample, which implies a patient giving an identifier, i.e. their name, and permission for a sample. In addition, Hogan at paragraph [0187] teaches information generated by perioperative genomic profiling is automated. Therefore, Hogan discusses the automation of processing information and the use of genomic profiling for determining or influencing a surgical plan.

In addition, Hogan suggest this because at paragraph [0187] they teach a set of criteria to be met prior to administering a genetic test or genomic profile test, such as whether the subject is a candidate for genomic profiling, if a particular method is available for performing said test, if the method will provide useful information for a particular application and its practicality, and if there is clinical utility, i.e. provide a predication of a phenotype related to the genotype, which read on steps (a), (c), and (d). In addition, Hogan at paragraphs [0192] - [0193] teach that the data may be stored for future use and thus if the data is stored for future use, it implies that a clinician may access this data prior to performing the genomic profile test.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have first determined if the patient information comprises a genetic test result value for an associated gene in the method which has a list of criteria to be met prior to performing a genomic profiling test taught by Hogan. This is because Hogan teaches an invention for using a patient's genomic profile to provide the best surgical plan, which includes administration of an anesthetic drug, wherein a test result may influence the surgical plan. Genomic profiling can be an expensive test as discussed by Hogan. Therefore, one of ordinary skill in the art could have pursued known potential solutions, i.e. automating a method of first checking a patient's medical record to first see if a genomic profile has been performed, with a reasonable expectation of success. One of ordinary skill in the art could have applied the known technique in the same way to the "base" method and the results would have been predictable, i.e. more cost effective in the case where a genomic profile had already been made. Hogan at the background and paragraphs [0030] – [0034] discuss the cost-effectiveness and importance of it when performing perioperative testing of patients.

This is further obvious because Hogan teach a list of criteria that ensure the necessity, practicality, and utility of performing such a test. Thus, with such criteria being important prior to running such a test, it would have been obvious to also first determine if a genetic test result value exists in the current medical record of a patient prior to running said test. This obvious step would have been a design incentive which would have prompted one of ordinary skill in the art to vary the prior art in a predictable manner to result in the claimed invention.

With regards to the amendments of claim 18, Hogan suggests, but does not explicitly teach “when the clinical agent is not associated with a gene from the first data set, the first determining component approves administration of the clinical agent.

Hogan suggests this because Hogan at paragraphs [0030] – [0034] discuss the cost-effectiveness of performing perioperative tests, i.e. genomic profiling. Furthermore, at paragraphs [0119] – [0127] Hogan teaches that only markers that correlate with a subject's response or ones that can provide effective and helpful information are included in obtaining a genomic profile.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to have approved the administration of a clinical agent if the agent is not associated with a gene from a data set known to be associated with the agent. This is because Hogan teaches the need to perform effective testing wherein only markers for which a lot of data is available and known are selected. Hogan further teaches, such as at paragraph [0129] that markers may be subtracted from screening, which are known to not influence the patient. Thus it is implied from the teaching of Hogan, that if an agent is not associated with a gene from a known data set, that the administration of the agent would be approved. The invention of Hogan teaches to screen in a cost-effective way for approvable agents for administration. Hogan further teaches using markers for which a lot of data is known. Therefore, if no known gene was associated with an agent, it would be implied that the agent would be approved from the teachings of Hogan. A person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp, which would lead to the

anticipated success, thus the amended step is the product not of innovation, but of ordinary skill and common sense.

Hogan at paragraphs [0005], [0008], and [0138] discusses assessing the dosages associated with the clinical agents and risk assessments as in claims 2, and 19.

Hogan at paragraphs [0186] and [0188] – [0193] discusses that the clinical agent and genetic information may be stored and communicated via various computerized applications, including electronic medical records including computers, which reads on claims 3, 10, 20, and 27.

Hogan at paragraph [0031] – [0033] discusses a problem is “how to alter treatment course of action in response to results,” as in genomic screening results and the present invention unites “medicine with genetics” to solve the described problem and to individualize treatment options for each subject. The genomic screening and obtaining genomic profiles and Figs. 4 and 5 disclosed as examples of data sets comprising gene and allele associations with clinical agents implies a querying to determine if a gene is associated with a planned-to-be-administered clinical agent as in claims 4, 5, 21, and 22.

Hogan at paragraphs [0190] – [0191] teaches outputting information about the atypical clinical event associated with the polymorphism values such that a “clinical action” may be initiated as recited in claims 6, 13, and 23.

Hogan at paragraph [0190] discusses that the risk assessment for the various treatment options are displayed to the clinician on a computer monitor, which reads on a warning that particular agents should not be administered as in claim 7.

Hogan at Fig. 4, discloses an example of a data set which includes information about risks associated with the atypical clinical events. Furthermore, at paragraphs [0115], [0129], [0136] – [0147], and [0186] teaches comparing genetic test result values for multiple genes to polymorphoism values associated with adverse reactions, i.e. risks associated with atypical clinical events, and that agent information may include dosage and other PK/PD parameters as in claims 12, 13, 16, 29, 30, and 33.

Hogan does not explicitly teach a method wherein the data sets of agent-gene associations may be updated as in claims 11 and 28.

Hogan at Fig. 2 describes in the analysis step of comparing genomic profile values to gene-agent association data that research data may be included in a data set used for comparison.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use data sets that may be updated. This is because it is a goal of the instant invention to tailor surgery treatments to subjects using genomic profiles and data, wherein it is implied that using the most updated genomic data available causes the instant invention to be used in its most opportunistic way. Therefore, it is implied that the gene-agent association data sets used are data sets that are updated as is also the nature of research, to update the current information existing in the field.

Hogan does not explicitly teach a method wherein the data sets are incorporated into a single data set as in claims 14 and 31.

However, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to have used combined data sets as it can be a more efficient means for comparing data and easier for visually comparing or looking up information such as gene-agent information. Furthermore, it is a common goal of researchers to consolidate the most updated information into single sources of data, wherein combining the most up to date information on gene-agent associations into a single source such as a single data set would be in line with research goals. Therefore, using a single source of data such as a single data set would be more efficient for determining risk assessments based on gene-agent associations.

Response to Arguments

Applicant's arguments with respect to claims 1-6, 11-14, 16, 18, 20-23, 27-31, and 33 have been considered but are moot in view of the new ground(s) of rejection.

However, with respect to applicant's arguments filed 8/3/2009, they have been fully considered but they are not persuasive.

Applicant argues that paragraphs [0007] – [0009] and Figs. 4-5 do not identify each gene that is likely to interact with a clinical agent (resulting in an atypical event) and thus do not explicitly or inherently consider "identifying each of the genes associated with the clinical agent" by comparing the identifier of the clinical agent received from the clinician to a first data set containing agent-gene associations.

Applicant's arguments are not found persuasive because Hogan at paragraphs [0007] – [0009] describe certain enzymes, their alleles, that cause atypical events in patients when said patients are given certain clinical agents. Furthermore, Fig. 4 is a table that lists the genes, their alleles, the clinical agents, which are "Contra-indicated", and the atypical events they cause when administered. Thus, Hogan et al. do teach identifying each of the genes associated with the clinical agent by comparing the identifier of the clinical agent received from the clinician to a first data set containing agent-gene associations.

Applicant further argues that the genomic screening described by Hogan, which is a "preoperative screening for markers by providing an assay for detecting two or more genetic markers and subjecting a sample (e.g. tissue of the patient) to the assay to generate a genomic profile," does not teach "identifying each of the genes associated with the clinical agent" by comparing the identifier of the clinical agent received from the clinician to a first data set containing agent-gene associations."

Applicant's arguments are not found persuasive because it is the preoperative screening for markers, which is used to compare against a data set as in Fig. 4, i.e. agent-gene association data, in order to determine if the patient has a gene which may cause an atypical event.

Applicant further argues that the method of Hogan do not teach, first, receiving from a clinician clinical agent information, and second, identifying each of the genes associated with the clinical agent by comparing the identifier of the clinical agent received from the clinician to a first data set containing agent-gene associations.

Applicant's arguments are not found persuasive because Hogan at paragraph [0005] discusses that the choice of anesthetic regimen, agent, and dose depends on the type of surgery or procedure. Therefore, it is implied that with planning a surgery, a clinician will plan for the appropriate clinical agent, i.e. anesthesia drug, to be administered during the surgery, which reads on the first method step, receiving from a clinician clinical agent information, the clinical agent information including an identifier of a specific clinical agent. Hogan at paragraphs [0007] – [0009] discusses how certain genes are associated with particular anesthetic drugs. Hogan at Figs. 4 and 5 describes data sets that comprise genes, alleles and associations with particular clinical agents. Therefore, it is implied that when determining if a gene is associated with a particular clinical agent, it is done through comparing the identifier of the clinical agent to a data set comprising agent-gene associations. Furthermore, Fig. 4 is a table that lists the genes, their alleles, the clinical agents, which are "Contra-indicated", and the atypical events they cause when administered. Thus, Hogan et al. do teach identifying each of the genes associated with the clinical agent by comparing the identifier of the clinical agent received from the clinician to a first data set containing agent-gene associations. Hogan teaches at paragraphs [0011] – [0013] discusses genomic screening of a subject prior or during a surgical procedure to obtain a genomic profile, which reads on the second step of determining if a gene is associated with the clinical agent by comparing the identifier of the clinical agent received from the clinician to a first data set containing agent-gene associations, and if a gene is associated with the

clinical agent, obtaining a genetic test result value for the associated gene of the person.

Applicant argues that the Hogan reference does not describe administering a test on the patient to gather a genetic test result value only after the criteria (a)-(d) have been met.

Applicant's arguments are not found persuasive because while Hogan do not explicitly teach, they do suggest administering a test to gather a genetic test result only after steps (a)-(d) are met. In particular, Hogan do not explicitly teach first determining that patient information in an EMR does not comprise a genetic test result value for the associated gene. Hogan suggest this because at paragraph [0187] they teach a set of criteria to be met prior to administering a genetic test or genomic profile test, such as whether the subject is a candidate for genomic profiling, if a particular method is available for performing said test, if the method will provide useful information for a particular application and its practicality, and if there is clinical utility, i.e. provide a predication of a phenotype related to the genotype, which read on steps (a), (c), and (d). In addition, Hogan at paragraphs [0192] - [0193] teach that the data may be stored for future use and thus if the data is stored for future use, it implies that a clinician may access this data prior to performing the genomic profile test.

As set forth above, it would have been obvious to one of ordinary skill in the art at the time of the invention to have first determined if the patient information comprises a genetic test result value for an associated gene in the method which has a list of criteria to be met prior to performing a genomic profiling test taught by Hogan. This is because

Hogan teach a list of criteria that ensure the necessity, practicality, and utility of performing such a test. Thus, with such criteria being important prior to running such a test, it would have been obvious to also first determine if a genetic test result value exists in the current medical record of a patient prior to running said test. This obvious step would have been a design incentive which would have prompted one of ordinary skill in the art to vary the prior art in a predictable manner to result in the claimed invention.

With regards to claim 18, applicant argues that Hogan reference does not explicitly or inherently teach utilizing the second data set to determine whether a risk of damage from not administering the clinical agent is greater than the risk of damage by lowering the dosage of the clinical agent

Applicant's arguments are not found persuasive because Hogan discuss at paragraph [0005] that the choice of clinical agent, i.e. anesthetic, and dose depends on the type of surgery or procedure, other current medications, and any underlying diseases or pre-dispositions that a patient may have. Thus, Hogan describes that a clinician will know the dose and anesthetic when a determination is made about the surgery or procedure. Therefore, it is inherent that when the Hogan reference describes obtaining a genetic profile test result, to determine if a patient has a particular gene, which is compared against a data table of genes which have contra-indications for particular clinical agents, that the dosage of clinical agent to be administered is inherently compared as particular anesthetics are administered for particular surgeries and procedures at particular doses. Furthermore, Hogan at paragraphs [0008] and

[0138] describe that subjects with mutations, "which metabolize a variety of drugs commonly given in conjunction with surgical procedures, can have adverse reactions due either to the inability to activate or metabolize certain drugs (e.g., morphine derivatives and anti-dysrhythmic). Complications can be avoided by substituting other medications or adjusting dosage." Therefore, Hogan describe a procedure for determining, based on a genetic profile test result, a risk for administering, or not administering, and possibly adjusting the dosage of a clinical agent. Hogan further describe at paragraph [0010] that the taught invention is directed to the need for a proper choice of anesthetic, related drugs, and other treatment factors, which can reduce complications and morbidity, and mortality, wherein rapid assays predictive of risks of complications are needed. Hogan further describe at paragraph [0013] that the genomic profile comprises information pertaining to these risks and at paragraph [0034] state that the patient's markers predict a subject's risk. In essence, Hogan describe an invention where the risk of damaged is assessed and a response to the risk evaluation is determined, i.e. choice of anesthetic or adjusting the dosage, etc.

Applicant further argues that Hogan do not teach the very specific notification window that concomitantly displays the items (a) a selectable area for accessing information regarding polymorphism values, and (b) an alternative clinical agent that does not correlate with the genetic test result value.

Applicant's arguments are not found persuasive as Hogan at paragraph [0188] describe a computer-based analysis program is used to translate the raw data generated by the genomic profile into data of predictive value for the clinician, wherein

the clinician is then able to immediately utilize the information in order to optimize the perioperative care of the subject. Hogan further describe in paragraph [0190] that the prepared format of the data may represent a risk assessment for various treatment options the clinician may use or as recommendations for particular treatment options (i.e. selection of proper drugs, see paragraph [0191]), where the data may be displayed to the clinician.

The following rejection is being modified, which has been necessitated by amendment:

Claims 35-40, 44-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan (US A/N 2002/0110823) as applied to claims 1 and 18 above, and further in view of Classen (US P/N 6,219,674).

Hogan teaches limitations of claim 35, which overlap with claims 1 and 18 as discussed above in the instant office action.

With regards to amendments of claim 35: Hogan suggests, but does not explicitly teach the amended claim step of:

“when the genetic test result value cannot be obtained, calculating the likelihood that the person displays a genetic mutation linked to the gene associated with the clinical agent based on genetic variability of the gene within the general population and constructing a message to communicate the calculated likelihood of the genetic mutation and any atypical clinical events that are associated therewith.”

Hogan suggests this because Hogan teaches an invention directed to a cost-effective way of determining risk of a patient for surgical complications. Hogan further teaches at paragraph [0013] the different factors are included in a genomic profile for determining the risk, such as information pertaining to differential diagnosis of recognized co-existing disease, information pertaining to pharmacokinetic and pharmacodynamic risks. Although Hogan's invention is directed to determining risk based on a genetic test result value, Hogan suggests using other information for said determination of risk as stated above. Furthermore, Hogan teach throughout the invention that the genomic profile information is communicated to a clinician, third party, or others for practical utilization.

Classen teaches at the abstract and cols. 1-5 storing adverse event data for drugs in a database. Classen teaches at col. 5- col. 6 that extracted data can be analyzed to calculate risk for an individual wherein the data of an individual is compared to the same persons with similar characteristics before receiving the medical product wherein these characteristics are applied to the general population, i.e. when determining risk/benefit analysis for adults, the study would not include infants, it would use age to determine risk/benefit for similar aged populations. Classen teaches at col. 6, lines 13-17 wherein the characteristics are those such as race and genetic characteristics, which are applied to the general population. Therefore, the use of genetic characteristics from the general population in order to determine risk for an adverse event for a particular drug reads on calculating the likelihood that the person has a mutation linked to gene associated with the clinical agent based on the general

population. Furthermore, Classen at Figs. 4-6 teach communicating said information to users, such as individuals, corporation, agencies, research institutions, health professionals, etc. Thus, Classen teaches constructing a message to communicate said risk assessment, i.e. likelihood of a genetic mutation and any atypical clinical event associated therewith.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to have used the database and methods for assessing risk based on general population data and construct a message to communicate said information as taught by Classen with the method taught by Hogan. This is because Hogan teaches an invention directed to determining risk based on an obtained genomic profile. Hogan teaches calculating risk based on a genomic profile wherein the information is communicated to the clinician or other third party users. It would be implicit that if a genomic test result value cannot be obtained that other information would be used, such as population data wherein the information would be communicated to a third party as taught by Classen. Hogan teach at paragraph [0006] that at-risk patients have been identified by a family history and at paragraph [0031] that other information has been used for calculating risk. It would have been obvious to one of ordinary skill in the art that when a genomic profile is not obtainable that determining risk of a patient based on other information can still be beneficial as taught by Hogan. Therefore, it would have been obvious to one of skill in the art to use an updated adverse event database populated with correlated general population data in order to determine risk when a genomic profile or genetic test result is not obtainable. The use of other information for

determining risk was recognized as part of the ordinary capabilities of one skill in the art. One of ordinary skill in the art would have been capable of applying this known technique to the known method taught by Hogan that was ready for improvement and the results would have been predictable to one of ordinary skill in the art.

Hogan at paragraphs [0005], [0008], and [0138] discusses assessing the dosages associated with the clinical agents and risk assessments as in claim 36.

Hogan at paragraphs [0186] and [0188] – [0193] discusses that the clinical agent and genetic information may be stored and communicated via various computerized applications, including electronic medical records including computers, which reads on claims 37 and 44.

Hogan at paragraph [0031] – [0033] discusses a problem is “how to alter treatment course of action in response to results,” as in genomic screening results and the present invention unites “medicine with genetics” to solve the described problem and to individualize treatment options for each subject. The genomic screening and obtaining genomic profiles and Figs. 4 and 5 disclosed as examples of data sets comprising gene and allele associations with clinical agents implies a querying to determine if a gene is associated with a planned-to-be-administered clinical agent as in claims 38, and 39.

Hogan at paragraphs [0190] – [0191] teaches outputting information about the atypical clinical event associated with the polymorphism values such that a “clinical action” may be initiated as recited in claims 40 and 47.

Hogan at Fig. 4, discloses an example of a data set which includes information about risks associated with the atypical clinical events. Furthermore, at paragraphs [0115], [0129], [0136] – [0147], and [0186] teaches comparing genetic test result values for multiple genes to polymorphoism values associated with adverse reactions, i.e. risks associated with atypical clinical events, and that agent information may include dosage and other PK/PD parameters as in claims 46 and 50.

Hogan does not explicitly teach a method wherein the data sets of agent-gene associations may be updated as in claim 45.

Hogan at Fig. 2 describes in the analysis step of comparing genomic profile values to gene-agent association data that research data may be included in a data set used for comparison.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use data sets that may be updated. This is because it is a goal of the instant invention to tailor surgery treatments to subjects using genomic profiles and data, wherein it is implied that using the most updated genomic data available causes the instant invention to be used in its most opportunistic way. Therefore, it is implied that the gene-agent association data sets used are data sets that are updated as is also the nature of research, to update the current information existing in the field.

Hogan does not explicitly teach a method wherein the data sets are incorporated into a single data set as in claim 48.

However, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to have used combined data sets as it can be a more efficient

means for comparing data and easier for visually comparing or looking up information such as gene-agent information. Furthermore, it is a common goal of researchers to consolidate the most updated information into single sources of data, wherein combining the most up to date information on gene-agent associations into a single source such as a single data set would be in line with research goals. Therefore, using a single source of data such as a single data set would be more efficient for determining risk assessments based on gene-agent associations.

Hogan at paragraph [0190] discusses that the risk assessment for the various treatment options are displayed to the clinician on a computer monitor, which reads on claim 49.

Response to Arguments

Applicant's arguments with respect to claims 35-40, 44-50 have been considered but are moot in view of the new ground(s) of rejection.

However, with respect to applicant's arguments filed 8/3/2009, they have been fully considered but they are not persuasive.

Applicant argues that the Classen reference describes using demographic information of a patient to access statistically relevant information of a subgroup, wherein Classen do not describe using genetic variability of the gene within the general population.

Applicant's arguments are not found persuasive because Classen teaches at the abstract and cols. 1-5 storing adverse event data for drugs in a database. Classen

teaches at col. 5- col. 6 that extracted data can be analyzed to calculate risk for an individual wherein the data of an individual is compared to the same persons with similar characteristics before receiving the medical product wherein these characteristics are applied to the general population, i.e. when determining risk/benefit analysis for adults, the study would not include infants, it would use age to determine risk/benefit for similar aged populations. Classen teaches at col. 6, lines 13-17 wherein the characteristics are those such as race and genetic characteristics, which are applied to the general population. Thus Classen teaches the deficiencies not explicitly taught in the Hogan reference, i.e. using the genetic variability of the gene within the general population to calculate the likelihood that a person displays a genetic mutation, see the instant office action stated above.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Sims, whose telephone number is (571)-272-7540.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Marjorie Moran can be reached via telephone (571)-272-0720.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (571)-273-8300.

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Art Unit: 1631

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/ Jason Sims /

/Marjorie Moran/

Supervisory Patent Examiner, Art Unit 1631